

I Claim:

1. A compact loudspeaker and control switch assembly adapted for installation in a partition and adjustment; comprising:

a loudspeaker driver including a diaphragm suspended in a supporting flange structure proximate the driver proximal peripheral edge, said driver diaphragm having a proximal surface and a central axis; said driver further including a motor structure including a magnet and an axially aligned pole piece; and

a control switch connected to said loudspeaker and configured to control a signal passed to the loudspeaker driver; said switch being actuable using an elongate switch shaft having a proximal end, said shaft passing through said pole piece and said driver diaphragm whereby said shaft proximal end projects proximally beyond said driver diaphragm proximal surface.

2. The compact loudspeaker and control switch assembly of claim 1, wherein said control switch is carried on a distal back plate of said motor structure.

3. The compact loudspeaker and control switch assembly of claim 1, wherein said control switch is configured to control the amplitude of said signal passed to the loudspeaker driver.

4. The compact loudspeaker and control switch assembly of claim 1, wherein said control switch is configured to control the input power level of said signal passed to the loudspeaker driver.

5. The compact loudspeaker and control switch assembly of claim 4, wherein said control switch is configured to select one transformer tap among a plurality of available taps for controlling said signal passed to the loudspeaker driver.

6. The compact loudspeaker and control switch assembly of claim 1, wherein said control switch shaft proximal end carries an acoustic diffuser.

7. The compact loudspeaker and control switch assembly of claim 6, wherein said acoustic diffuser comprises a radiation uniformity enhancing phase plug.

8. The compact loudspeaker and control switch assembly of claim 1, further including a back can having a central axis that is coaxial with said driver central axis; said back can having a proximal opening adapted to receive said driver, wherein said driver is carried in said back can by the driver supporting flange peripheral edge;

said back can also having a solid side wall and a solid rear wall defining the back can exterior surface and carrying a plurality of electrically conductive connectors;

wherein said driver, said selector switch and a multi-tap transformer are enclosed within said back can;

wherein said switch and said driver are connected with at least one electrical conductor;

wherein said multi-tap transformer and said switch are connected with a plurality of electrical conductors; and

wherein said multi-tap transformer and said electrically conductive connectors are connected with at least one electrical conductor.

9. The compact loudspeaker and control switch assembly of claim 8, wherein said control switch shaft proximal end carries an input power level selector knob.

10. The compact loudspeaker and control switch assembly of claim 9, wherein said control switch is configured to select one transformer tap among a plurality of available taps for controlling said signal passed to the loudspeaker driver.

11. The compact loudspeaker and control switch assembly of claim 8, wherein said electrically conductive connectors comprise four conductive poles aligned in a linear array.

12. The compact loudspeaker and control switch assembly of claim 8, wherein said electrically conductive connectors are carried on a distal portion of said back can exterior surface.

13. The compact loudspeaker and control switch assembly of claim 8, wherein said back can exterior surface includes a proximal outwardly projecting peripheral flange.

14. The compact loudspeaker and control switch assembly of claim 14, wherein said back can exterior surface includes at least one swing-out fastener carried on said back can exterior surface proximate said proximal peripheral flange.

15. A method for installing and adjusting a loudspeaker in a partition, comprising the method steps of:

(a) providing a loudspeaker and signal controller housed within an enclosure having a distal end opposing a proximal end; said loudspeaker including a loudspeaker driver, said driver having a diaphragm with a proximal surface bounded by a peripheral edge, and said loudspeaker also including a proximally projecting manipulable controller input supported within said driver peripheral edge and on the proximal side of the driver proximal surface; said loudspeaker enclosure carrying an electrical connector adapted to receive an audio signal;

(b) providing a partition having an aperture therethrough; said aperture dimensioned to receive said enclosure and said partition having a proximal surface opposite a distal surface;

(c) providing an audio signal distribution system connection that is accessible from the partition aperture proximate the partition distal surface;

(d) connecting said audio signal distribution system connection to said enclosure electrical connector;

(e) inserting said enclosure into said partition aperture to bring said enclosure proximal end into contact with said partition proximal surface, and

(f) fastening said enclosure to said partition.

16. The method for installing and adjusting a loudspeaker in a partition of claim 15, further comprising the method step of:

(f) energizing said audio signal distribution system connection to provide an audio signal to said loudspeaker driver; and then, without removing said enclosure from said partition aperture,

(g) adjusting the audio playback of said loudspeaker driver by adjusting said proximally projecting manipulable controller input.

17. The method for installing and adjusting a loudspeaker in a partition of claim 16, further comprising the method steps of:

(h) providing a second loudspeaker and signal controller housed within a second enclosure having a distal end opposing a proximal end; said second loudspeaker including a second loudspeaker driver, said second driver having a diaphragm with a proximal surface bounded by a peripheral edge, and said second loudspeaker also including a second proximally projecting manipulable controller input supported within said second driver peripheral edge and on the proximal side of the driver proximal surface; said second loudspeaker enclosure carrying an electrical connector adapted to receive said audio signal;

(i) providing a second partition aperture through said partition; said second aperture dimensioned to receive said second enclosure;

(j) providing a second audio signal distribution system connection that is accessible from the second partition aperture proximate the partition distal surface;

(k) connecting said second audio signal distribution system connection to said second enclosure electrical connector;

(l) inserting said second enclosure into said second partition aperture to bring said second enclosure proximal end into contact with said partition proximal surface,

(m) fastening said second enclosure to said partition;

(n) energizing said audio signal distribution system second connection to provide said audio signal to said second loudspeaker driver; and then, without removing said second enclosure from said partition aperture;

(o) adjusting the audio playback of said second loudspeaker driver by adjusting said second proximally projecting manipulable controller input to balance the outputs of the first and second loudspeaker drivers without removing either the first or second enclosures from said partition.

18. The method for installing and adjusting a loudspeaker in a partition of claim 15, wherein step (f) fastening said enclosure to said partition, comprises:

(f1) swinging a first rotatable dog-leg retaining member out from a first position within the peripheral edge of said enclosure to a second position extending radially beyond the peripheral edge of said enclosure, to engage said partition distal surface

19. The method for installing and adjusting a loudspeaker in a partition of claim 18, further comprising:

(f2) swinging a second rotatable dog-leg retaining member spaced along the enclosure circumference from said first rotatable dog-leg retaining member out from a

first position within the peripheral edge of said enclosure to a second position extending radially beyond the peripheral edge of said enclosure, to engage said partition distal surface.

20. A method for making an adjustable loudspeaker, comprising:

(a) providing a loudspeaker driver having a diaphragm with a proximal surface bounded by a peripheral edge and a distal motor structure including an axially aligned pole piece having an aperture therethrough,

(b) inserting a switch carrying an elongate shaft having a free end through said pole piece aperture to project proximally beyond said diaphragm proximal surface; and

(c) mounting a manipulable controller input on said shaft free end such that it is supported within said driver peripheral edge and on the proximal side of the driver proximal surface.